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(54) **Emergency escape breathing apparatus**

(57) The apparatus includes a hood 1 made of a flexible material and having a neck seal 3 and a baffle 4, such as an orinasal mask, mounted to provide an internal confined space around a wearer's nose and mouth. Breathable gas is supplied to the hood either directly to the interior of the baffle or to the interior of the hood outside the baffle. The flexible material of the hood includes stretchable elastic material 11 extending from a position on one side, around the back of the hood to a similar position on the other side of the hood, so that, in use, the baffle is drawn firmly against the wearer's face thereby correctly positioning the hood upon the wearer's head. The stretchable elastic material may be incorporated in the flexible material of the hood as one or more bands of smocking. Alternatively, the flexible material of the hood may be made of stretchable elastic material, preferably a knitted viscose material coated with a plastics compound to render the material impervious.

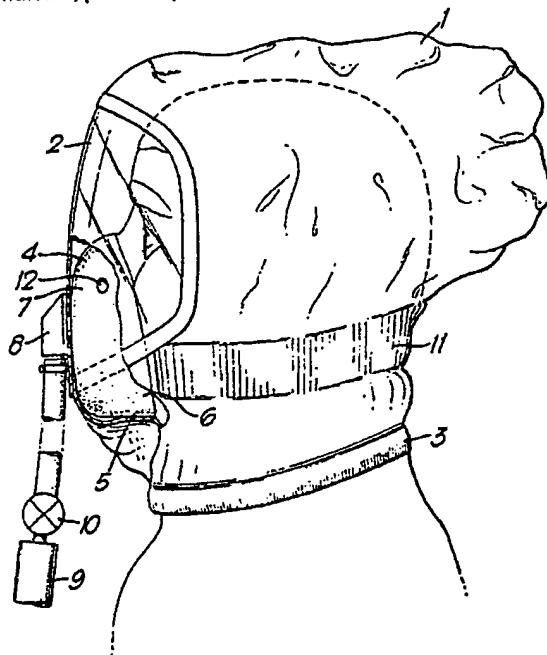


FIG.1.

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FIG. 1.

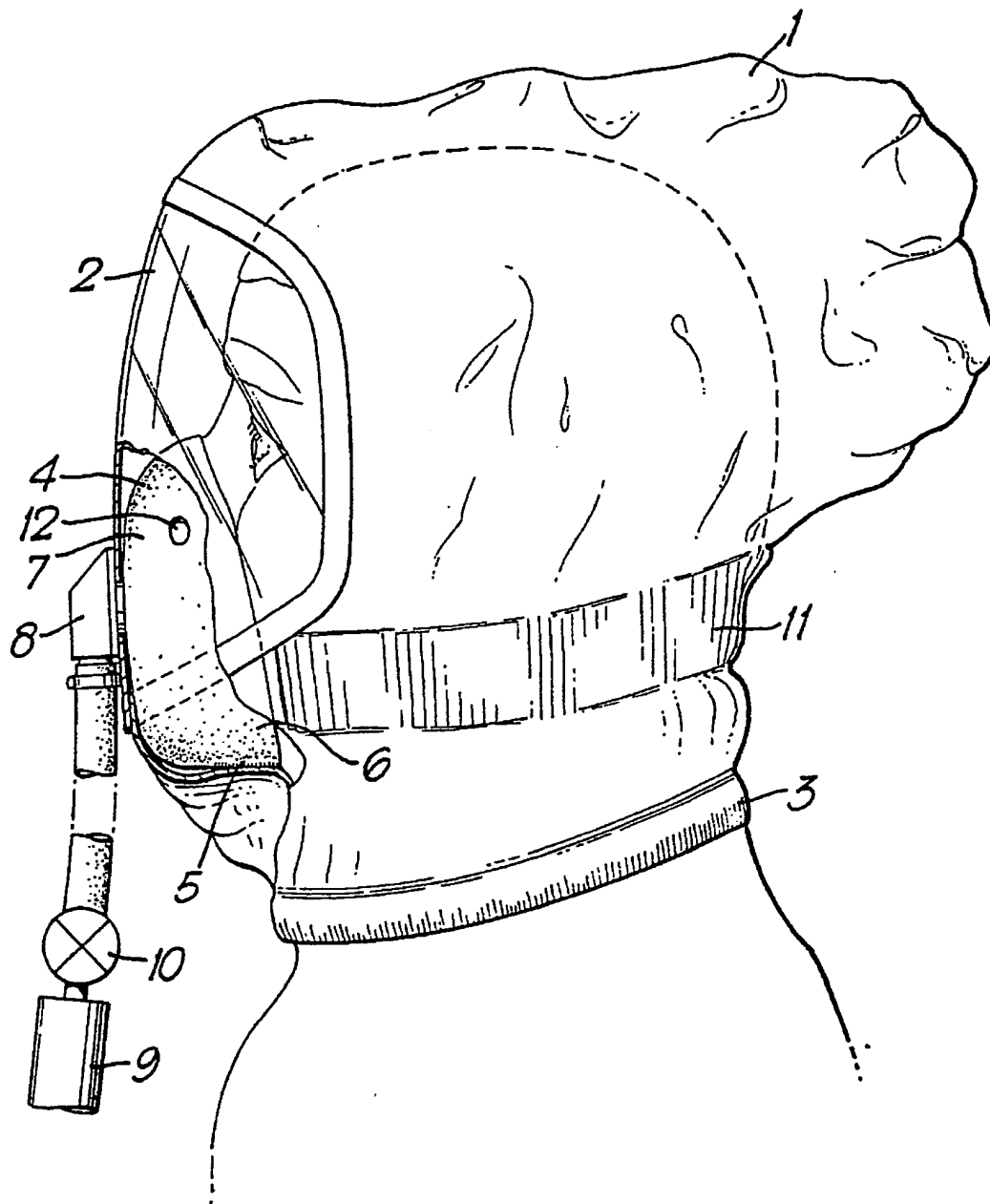
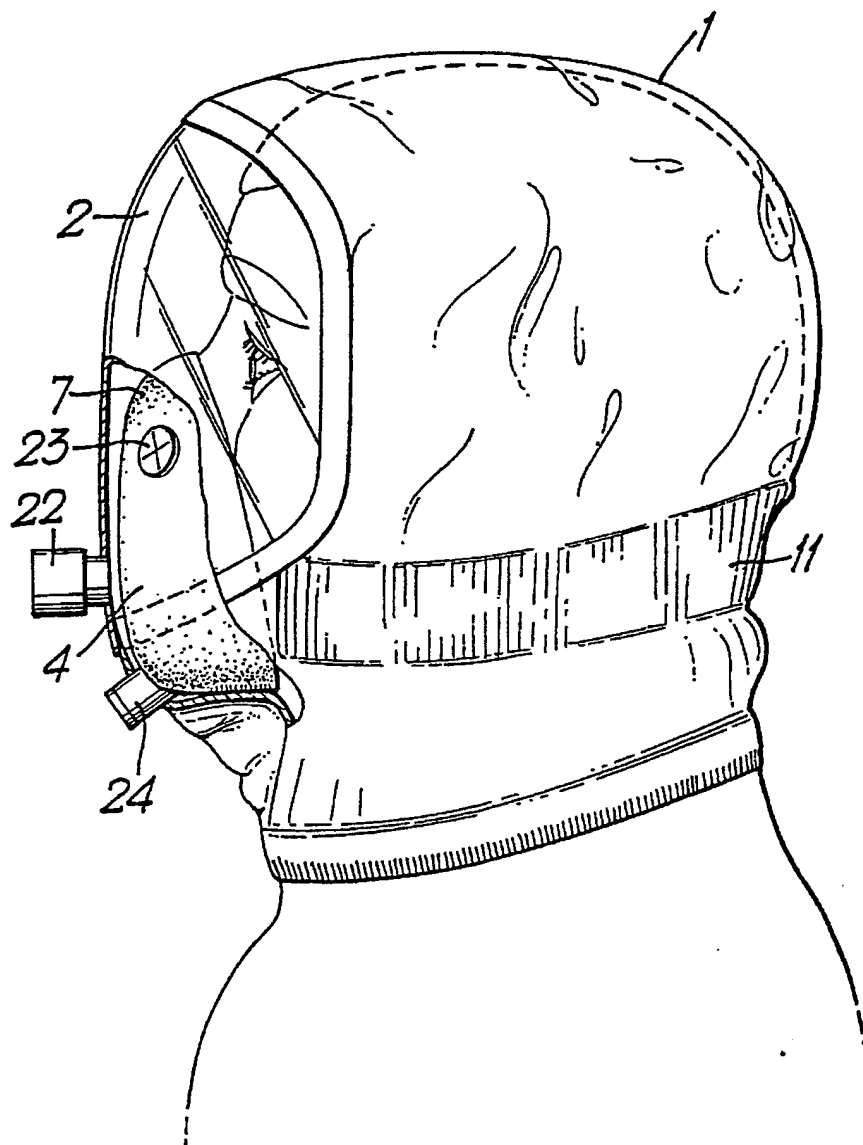
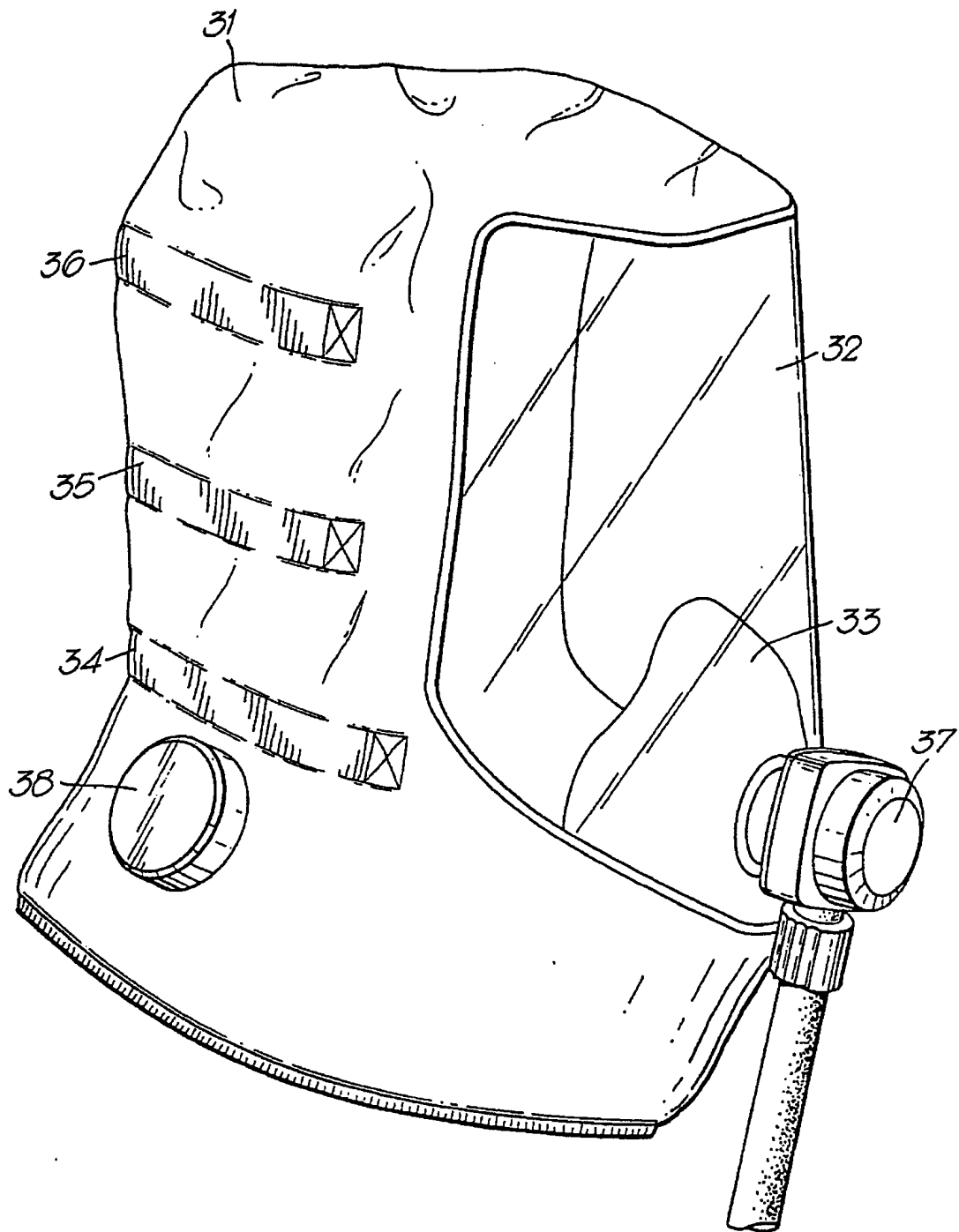


FIG. 2.



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FIG. 3.



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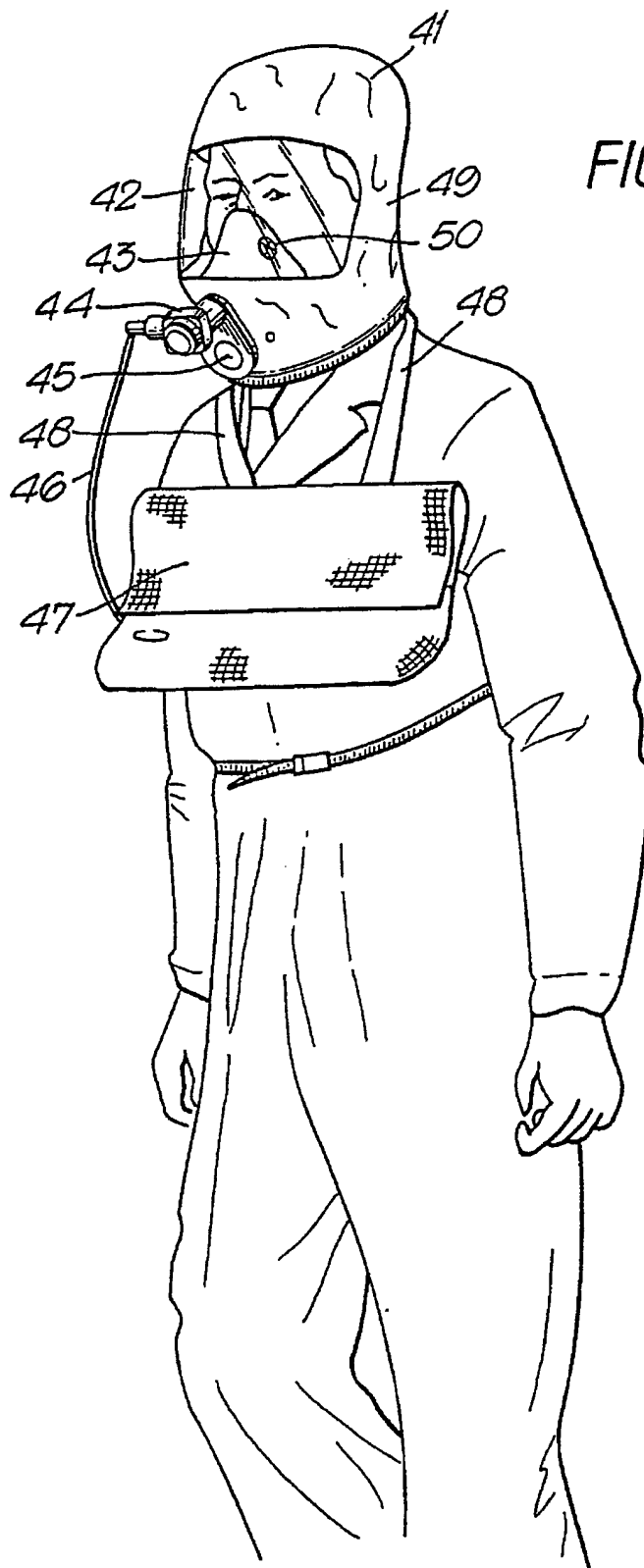


FIG. 4.

EMERGENCY ESCAPE BREATHING APPARATUS

This invention relates to emergency escape breathing apparatus. One well known form of emergency escape breathing apparatus consists of a flexible hood connected to a compressed air cylinder. In an emergency a valve controlling the air cylinder is turned on so that air is supplied continuously to the flexible hood which is then pulled on over a person's head enabling that person to walk through an irrespirable atmosphere, for example a smoky atmosphere due to a fire, to a place of safety where the hood can be removed.

The flexible hood normally has a neck seal surrounding the neck of the wearer and preventing the ingress of the irrespirable atmosphere into the interior of the hood but permitting escape of gases from the interior of the hood where an increased pressure greater than atmospheric pressure tends to build up due to the continued supply of air or other breathable gas to the hood. The hood may include an exhale valve for preventing a substantial increase in pressure within the hood when the neck seal is a good seal and permits only a low level of gas escape from within the hood.

After a short period of use, the gases contained within the flexible hood inevitably include carbon dioxide. Although some of this carbon dioxide will be among the gases escaping from the hood past the neck seal or through the exhale valve there is a possibility of the proportion of carbon dioxide within the hood increasing so that there is an undesirable quantity of carbon dioxide present in the gases which the wearer of the hood is breathing.

A known way of ensuring that the wearer will not breathe in gases containing an undesirable quantity of carbon dioxide is to use a baffle or other physical barrier to provide a confined space around the wearer's

nose and mouth from which exhaled gases can be expelled and to which the new air or other breathable gas can be supplied. The baffle may, for example, be an orinasal or half mask. However, the use of such an orinasal or half mask in a flexible hood detracts from the essential simplicity of this form of emergency escape breathing apparatus and presents difficulties to the user in getting the mask into the correct position around his nose and mouth.

Accordingly it is an object of the present invention to provide emergency escape breathing apparatus which has a baffle such as an orinasal or half mask inside a flexible hood and which is so designed that the baffle tends to take up a correct position on the wearer's head when the flexible hood is donned.

According to the present invention there is provided emergency escape breathing apparatus comprising a hood made of a flexible material and having a neck seal for engaging the neck of a wearer of the hood, a baffle mounted to a region of the interior of the hood to provide a confined space around a wearer's nose and mouth, and means for supplying breathable gas from a source thereof to the hood, the flexible material of the hood including stretchable elastic material extending from a position on one side of the region of the hood to which the baffle is mounted around the back of the hood to a similar position on the other side of the region of the hood to which the baffle is mounted, whereby the stretchable elastic material draws the baffle firmly against the wearer's face. Preferably an inner edge of a base portion of the baffle is located in a defined position relative to the hood.

The term "baffle" is used herein to denote any physical barrier capable of defining a confined space

around the wearer's nose and mouth and includes an orinasal mask which may be either a half mask or a quarter mask.

The provision of the stretchable elastic material combined with the location of the inner edge of the base portion of the baffle in a defined position relative to the hood enables emergency escape breathing apparatus according to the present invention to be donned without difficulty and causes the baffle to be brought readily into a correct position over the nose and mouth of the wearer.

The stretchable elastic material which forms at least part of the flexible material of the hood need not be a uni-directionally extensible material but may be extensible in more than one direction. It is essential however that this stretchable elastic material be linearly stretchable in the direction around the back of the hood in order to draw the baffle into contact with the front of the wearer's face around the nose and mouth.

The stretchable elastic material may constitute a band of elastic smocking ("a smocked band") forming part of the hood. Alternatively, there may be a plurality of bands of elastic smocking each forming part of the hood and extending around the back of the hood, the bands being at different levels.

In one embodiment of the present invention which will be described the flexible material of the hood includes three bands of elastic smocking which extend around the back of the hood, the first band of elastic smocking being below the wearer's ears, the second band of elastic smocking engaging across the wearer's ears, and the third band of elastic smocking engaging the top of the back of the wearer's head.

Alternatively the hood may be made at least partly of stretchable elastic material. For example the hood may be made from a linearly stretchable elastic material such that the linearly stretchable elastic material extends from a position on one side of the region of the hood to which the baffle is mounted, around the back of the hood to a similar position on the other side of the region of the hood to which the baffle is mounted, the said linearly stretchable elastic material being at least at the level of the ears or partly below the level of the ears of a wearer of the flexible hood.

Preferably the flexible hood, apart from a rigid visor portion, is made substantially wholly from the stretchable elastic material so that the hood is drawn against the back of the wearer's neck and head from the level of the neck seal to a level of at least the wearer's forehead.

The stretchable elastic material used in accordance with this aspect of the present invention is preferably of knitted viscose material similar to that used in the manufacture of the stretch bandaging marketed under the name TUBEGAUZ, the knitted viscose material being coated with a plastics compound to make the material impervious. Such coating with plastics material is preferably undertaken when the stretchable elastic material is in a stretched condition.

The portion of the flexible hood which covers the top of the wearer's head may also be made of stretchable elastic material or it may comprise a portion of unstretchable material connected to the stretchable elastic material.

In the embodiments of the present invention which will be described the baffle is constituted by an orinasal mask having a base portion for engaging under

the chin of the wearer, side portions extending upwardly from the base portion and a front portion joining the side and base portions for enclosing the nose and mouth of the wearer. The inner edge of the base portion of the orinasal mask is fixed relative to the hood to define a chin portion of the hood spaced from the neck seal.

In the embodiments of the present invention which will be described the base portion of the orinasal mask and the flexible material of the hood are bonded together at and near the inner edge of the base portion of the orinasal mask. The outer surface of the hood adjacent the base portion of the orinasal mask then preferably follows the contour of the said base portion. The base portion may however be bonded to the flexible material of the hood over the whole length of the base portion of the orinasal mask.

Alternatively the base portion of the orinasal mask may be made to constitute the chin portion of the hood, either by locating the base portion of the orinasal mask in the flexible material of the hood or by reinforcing the flexible material of the hood before securing the remainder of the orinasal mask to the hood.

In a further alternative the baffle or orinasal mask may be a "quarter mask". A quarter mask engages over the wearer's nose with the inner edge of its base against the front of the wearer's face beneath the mouth but above the chin. Fixing of a quarter mask to the interior of the hood causes the inner edge of the base of the quarter mask to be located in a defined position relative to the hood.

When the flexible material of the hood includes one or more bands of elastic smocking, the hood may be made of a flame-retardant material which is either entirely transparent or mostly opaque with a transparent

part constituting a visor in front of the wearer's face.

The front portion of the orinasal mask may include a plurality of apertures enabling exhaled gases to pass from the interior of the orinasal mask to the remainder of the interior of the hood. Such an arrangement may be used when there is a continuous supply of breathable gas to the orinasal mask, and one or more exhale valves may also be used in this circumstance.

The means for supplying breathable gas may include a demand valve. When the demand valve is connected directly to the baffle or orinasal mask, an exhale valve is provided in the baffle or orinasal mask for passing exhaled gases directly from the interior thereof to the surrounding atmosphere. Antifogging means is also preferably included inside the hood to prevent misting-up of the visor or other transparent part of the hood through which the wearer of the hood must see.

Alternatively the means for supplying breathable gas includes a demand valve responding to a reduction of pressure on inhalation for supplying breathable gas to the interior of the hood outside the orinasal mask, the orinasal mask includes an inhale valve enabling breathable gas to enter the orinasal mask from the interior of the hood outside the orinasal mask, and the orinasal mask further includes an exhale valve enabling exhaled gases to be discharged from the interior of the orinasal mask directly to the surrounding atmosphere.

In this arrangement the demand valve is preferably positioned outside the orinasal mask but adjacent the front portion of the orinasal mask so that breathable gas entering the hood on inhalation is deflected by the front portion of the orinasal mask past the visor to de-mist the visor before entering the orinasal mask through the inhale valve.

When a demand valve is used the hood may be a very snug fit around the head of the wearer similar to a Balaclava-helmet, such very snug fit being obtainable by use of stretchable elastic material to make substantially the whole of the flexible hood.

According to a still further feature of the present invention, a first breath mechanism is provided for initiating supply of breathing gas from the source immediately in response to the first inhalation after the hood of the emergency escape breathing apparatus has been donned.

The present invention will be further understood from the following detailed description of embodiments thereof which is made by way of example with reference to the accompanying drawings in which:-

Figure 1 is a side view in part cross-section of one embodiment of emergency escape breathing apparatus utilising a hood with a single smocked band in which there is constant flow of breathable gas to the hood,

Figure 2 is a similar side view in part cross-section of another embodiment of emergency escape breathing apparatus utilising a hood with a single smocked band in which a demand valve is used to control the flow of breathable gas to the hood,

Figure 3 is an enlarged perspective view of another embodiment of emergency escape breathing apparatus utilising a hood which includes three smocked bands, and

Figure 4 shows a preferred embodiment of emergency escape breathing apparatus utilising a hood made substantially wholly of stretchable elastic material in position on a wearer.

In the drawings the same or similar parts are denoted by like reference numerals.

Referring to Figure 1 there is shown a hood 1 made of a flexible material, for example a fabric coated with polyurethane. The hood 1 includes a visor part 2 of transparent polyurethane and has a neck seal 3 for engaging the neck of the wearer of the hood 1.

Mounted to the interior of the hood 1 is an orinasal mask 4. The orinasal mask 4 is of conventional shape and made all in one piece in a flexible rubber material. In this embodiment the orinasal mask 4 comprises a base portion 5 which engages beneath the chin of a wearer, side portions 6 which extend upwardly and outwardly over the cheeks of the wearer, and a front portion 7 which covers the nose of the wearer and the front of his face.

The orinasal mask 4 is mounted to the hood 1 with the front portion 7 secured to a lower part of the visor 2. A connecting means 8 is mounted on the outer surface of the visor 2 and connects the orinasal mask 4 to a source of breathable gas, such as a compressed air cylinder 9, through an on-off valve 10. The base portion 5 of the orinasal mask 4 is bonded to the flexible material of the hood 1 so that the outside contour of the hood 1 in this region follows the contour of the base portion 5 of the orinasal mask 4.

As an alternative to bonding the flexible material of the hood 1 to the base portion 5 of the orinasal mask 4, the base portion 5 of the orinasal mask 4 could be formed to constitute the wall of the hood 1 at this part of the hood 1. In implementing these embodiments of the present invention, the innermost edge of the base portion 5 of the orinasal mask 4 is secured to the flexible material of the hood 1 so that the flexible material of the hood 1 drops vertically a short distance

of the order of 2 to 5 centimetres to the neck seal 3.

The essential feature of this embodiment of the present invention is the inclusion in the flexible material of the hood 1 of a band 11 of elastic smocking ("the smocked band") which extends continuously around the back of the hood 1 from a position in the hood 1 near one side portion 6 of the orinasal mask 4 to a similar position near the other side portion of the orinasal mask 4.

The smocked band 11 comprises a band of elastic stitched into the flexible material of the hood 1 after the flexible material has been rucked or gathered. The smocked band 11 in the hood 1 engages the back of the neck or head of the wearer and draws the orinasal mask 4 into contact with the wearer's face over his nose and mouth.

The combination of the physical positioning of the inner edge of the base portion 5 of the orinasal mask 4 in the hood 1 by bonding to the flexible material of the hood 1 and the provision of the smocked band 11 formed in the flexible material of the hood 1 makes the flexible hood 1 containing an orinasal mask 4 relatively easy for the wearer to don and also enables the orinasal mask 4 to be essentially self-positioning over the nose and mouth of the wearer as he dons the hood 1.

Optionally a stiffener or spacer may be provided for stiffening the flexible material of the hood 1 between the inner edge of the orinasal mask 4 and the top of the neck seal 3.

The orinasal mask 4 contains a pair of apertures 12 (only one of which is shown in Figure 1) through which exhaled gases escape from the orinasal mask 4 into the main volume of the hood 1. The hood 1 is shaped to provide a sufficient volume of gas at

the back of the wearer's head above the level of the smocked band 11. Alternatively, however, the hood may be of a design which is tight fitting on the head, the breathing-bag volume being provided by a bull-frog inflated throat around the wearer's neck. Protective headgear external to the hood may then be worn over the tight fitting hood.

In operation the user takes the hood 1 from its packet, turns on the valve 10 and pulls the hood 1 over his head until the neck band 3 is round his neck and the smocked band 11 draws the orinasal mask 4 into contact with the front of his face around the nose and mouth with the smocked band 11 engaging the back of his head. The wearer then inhales the air or other breathable gas supplied continuously through the connecting means 8 to the orinasal mask 4. Surplus air or other breathable gas and exhale gases pass during exhalation through the apertures 12 into the general volume of the hood 1 from which some gas is withdrawn during inhalation. However, owing to the presence of the orinasal mask 4, to which breathable gas is continuously supplied, the proportion of carbon dioxide breathed by the wearer is very low.

The neck seal 3 prevents irrespirable gas entering the hood 1 from the atmosphere but permits leakage of gas from the volume of the hood 1, particularly during exhalation.

Optionally exhale valves may be provided in the apertures 12 of the orinasal mask 4.

The hood 1 of Figure 1 may be modified by the inclusion of a demand valve in the connecting means 8. The presence of such a demand valve will make the compressed air cylinder 9 last longer because air will now only be supplied to the orinasal mask 4 during inhalation.

When a demand valve is used the orinasal mask 4 must be modified to include exhale valves in the apertures 12 to allow discharge of exhaled gases from the orinasal mask 4 into the volume of the hood 1 during exhalation and to prevent gases passing from the volume of the hood 1 into the orinasal mask 4 during inhalation, thereby producing a reduced pressure within the orinasal mask 4 during inhalation, which opens the demand valve.

In Figure 2 of the accompanying drawings there is shown another embodiment of the present invention which is the same as the embodiment of Figure 1 in the mounting of the orinasal mask 4 to the hood 1 and the provision of the smocked band 11 which results in the orinasal mask 4 being essentially self positioning when the wearer dons the hood. However the hood 1 of Figure 2 differs from the hood 1 of Figure 1 in that the air supply (not shown) is connected through the visor 2 via a demand valve 22 to a space outside the orinasal mask 4 and between the front portion 7 of the orinasal mask 4 and the visor 2.

The orinasal mask 4 includes inhale valves 23 (only one of which is shown in Figure 2) enabling the wearer to breathe gas from the volume of the hood 21. The orinasal mask 4 also has an exhale valve 24 enabling discharge of exhaled gases from the orinasal mask 4 direct to the external atmosphere.

In the embodiment of the invention illustrated in Figure 2 the hood 1 operates very similarly to a conventional full face mask, the incoming air stream through the demand valve 22 being deflected upwardly by the front portion 7 of the orinasal mask 4 to demist the visor 2. In the embodiment of Figure 2 also it is unnecessary to provide a substantial volume within the hood 1 which can be made to conform more closely to the shape of a person's head.

The hood 1 of emergency escape breathing apparatus in accordance with the present invention may be modified by the inclusion of one or more further smocked bands passing over a higher part or parts of the back of the wearer's head. When multiple smocked bands are used these will preferably be separated from one another in the flexible material of the hood at the back of the wearer's head by stiffeners or spacers.

Referring to Figure 3 of the accompanying drawings, there is shown an embodiment of a flexible hood 31 which includes a rigid visor 32 and an orinasal mask 33 having the features particularly described with reference to the orinasal mask 4 of Figures 1 and 2. However, the flexible hood 31 includes three smocked bands 34, 35 and 36, each similar to the smocked band 11 of the hoods of Figures 1 and 2. In the hood 31, the smocked band 34 is below the level of the wearer's ears, the smocked band 35 engages across the wearer's ears and the smocked band 36 engages the top of the back of the wearer's head.

The flexible hood 31 of Figure 3 further includes a demand valve 37, which is part of a direct connection from the orinasal mask 33 to a source of breathing gas (not shown), an exhale valve 38, and an elastomeric neck seal 39.

The three smocked bands 34, 35 and 36 together constitute an integral elasticated head harness for the hood 31 of Figure 3.

Instead of making the hood of emergency escape breathing apparatus according to this invention with multiple smocked bands as shown in Figure 3, the hood, or a substantial part thereof, may be made from stretchable elastic material. Emergency escape breathing apparatus incorporating such a hood is shown in position on a wearer in Figure 4 of the accompanying drawings.

Referring to Figure 4 of the drawings, the emergency escape breathing apparatus comprises a flexible hood 41 which includes a rigid visor part 42 and an orinasal mask 43 having the features particularly described with reference to the orinasal mask 4 of Figures 1 and 2.

The flexible hood 41 is made substantially wholly from a linearly stretchable elastic material so that the hood 41 engages the top and back of the wearer's head as well as the back of his neck and the elastic material draws the orinasal mask 43 firmly against the wearer's face around the nose and mouth. The orinasal mask 43 is automatically located in the correct position as a result of the combination of the physical positioning of the orinasal mask 43 in the hood 41 by fixing the inner edge of its base portion to the hood 41, and the tensioning of the orinasal mask 43 against the wearer's face by the stretchable elastic material from which the hood 41 is made.

The linearly stretchable elastic material, which is indicated generally by lines 49 on the flexible hood 41, is preferably made from a knitted viscose material, said material having been coated with an impermeable plastics compound when in a partially or fully stretched condition.

The top of the flexible hood 41 which covers the top of the wearer's head may be made also of the linearly stretched elastic material or it may comprise a portion of unstretchable material connected to the linearly stretchable elastic material.

Mounted to the front of the flexible hood 41 are a demand valve 44 and an exhale valve 45. The demand valve 44 is connected through a flexible hose 46 to a source of breathing gas (not shown) which is retained in a pack 47 from which the flexible hood 41 has been taken

by the wearer, the pack being supported around the wearer's neck by straps 48.

The demand valve 44 may be connected directly to the interior of the orinasal mask 43, but is preferably connected in the manner shown in Figure 2 so that breathable gas fed to the interior of the hood 41 outside the orinasal mask 43 flows over and demists the surface of the visor part 42 before being drawn into the orinasal mask 43 through inhale valve 50 upon inhalation by the wearer of the hood 41.

The exhale valve 45 enables exhaled gases to be discharged from the interior of the orinasal mask 43 to the surrounding atmosphere.

Optionally, the hood of the emergency escape breathing apparatus according to the present invention may include ear surrounds at least partially encircling the ears of the wearer of the flexible hood. Such ear surrounds have the effect of baffling the noise of the breathing gas supplied to the hood so making it easier for the wearer of the hood to converse with another person.

The ear surrounds are preferably incorporated in the hood itself by fixing to the internal wall of the flexible hood. The stretchable elastic material is effective in maintaining the ear surrounds in contact with the ears of the wearer or with the head of the wearer near the ears.

In accordance with the present invention, it is essential that the tension provided either by one or a plurality of smocked bands, or by the stretchable elastic material constituting at least a major part of the hood must be such that the orinasal mask 4 remains in position on the face of the wearer of the hood.

The essence of the present invention lies in the combination of the physical positioning of the orinasal mask or other baffle in the hood and the tensioning of the orinasal mask or other baffle against the wearer's face by one or more smocked bands formed in the flexible material of the hood, or by the stretchable elastic material of the hood itself.

CLAIMS

1. Emergency escape breathing apparatus comprising a hood made of a flexible material and having a neck seal for engaging the neck of a wearer of the hood, a baffle mounted to a region of the interior of the hood to provide a confined space around a wearer's nose and mouth, and means for supplying breathable gas from a source thereof to the hood, the flexible material of the hood including stretchable elastic material extending from a position on one side of the region of the hood to which the baffle is mounted around the back of the hood to a similar position on the other side of the region of the hood to which the baffle is mounted, whereby the stretchable elastic material draws the baffle firmly against the wearer's face.

2. Emergency escape breathing apparatus comprising a hood made of a flexible material and having a neck seal for engaging the neck of a wearer of the hood, a baffle mounted to a region of the interior of the hood to provide a confined space around a wearer's nose and mouth, and means for supplying breathable gas from a source thereof to the hood, the baffle including a base portion for engaging beneath the chin of a wearer of the hood, an inner edge of the base portion of the baffle being fixed relative to the hood to define a chin portion of the hood spaced from the neck seal, and the flexible material of the hood including stretchable elastic material extending from a position on one side of the region of the hood to which the baffle is mounted around the back of the hood to a similar position on the other side of the region of the hood to which the baffle is mounted, whereby the stretchable elastic material draws the baffle firmly against the wearer's face.

3. Emergency escape breathing apparatus according to Claim 1 or Claim 2 wherein the flexible material of the hood includes a band of elastic smocking which constitutes the stretchable elastic material.

4. Emergency escape breathing apparatus according to Claim 3 wherein the flexible material of the hood includes a plurality of bands of elastic smocking which extend around the back of the hood, the bands being at different levels.

5. Emergency escape breathing apparatus according to Claim 4 wherein the flexible material of the hood includes three bands of elastic smocking, each forming part of the hood and extending around the back of the hood, the first band of elastic smocking being below the wearer's ears, the second band of elastic smocking engaging across the wearer's ears, and the third band of elastic smocking engaging the top of the back of the wearer's head.

6. Emergency escape breathing apparatus according to Claim 5 wherein the hood further comprises a plurality of vertical stiffeners for maintaining a desired spacing between the bands of elastic smocking.

7. Emergency escape breathing apparatus according to Claim 1 or Claim 2 wherein the hood is made substantially wholly of stretchable elastic material.

8. Emergency escape breathing apparatus according to Claim 1 or Claim 2 wherein the hood comprises stretchable elastic material from the region of the neck seal to at least a region level with the forehead of the wearer.

9. Emergency escape breathing apparatus according to Claim 8 wherein the hood includes a portion of unstretchable material covering the top of the wearer's

head and connected to the stretchable elastic material.

10. Emergency escape breathing apparatus according to any one of the preceding Claims wherein the baffle is constituted by an orinasal mask having a base portion for engaging against the face or under the chin of the wearer, side portions extending upwardly from the base portion and a front portion joining the side and base portions for enclosing the nose and mouth of the wearer.

11. Emergency escape breathing apparatus according to Claim 10 wherein the flexible material of the hood is bonded to the base portion of the orinasal mask at least near the inner edge of the base portion of the orinasal mask.

12. Emergency escape breathing apparatus according to Claim 10 wherein the base portion of the orinasal mask constitutes a chin portion of the hood.

13. Emergency escape breathing apparatus according to any one of Claims 10 to 12 wherein the front portion of the orinasal mask includes a plurality of apertures enabling exhaled gases to pass from the interior of the orinasal mask to the remainder of the interior of the hood.

14. Emergency escape breathing apparatus according to any one of Claims 10 to 12 wherein the front portion of the orinasal mask includes a plurality of exhale valves enabling exhaled gases to pass from the interior of the orinasal mask to the remainder of the interior of the hood.

15. Emergency escape breathing apparatus according to any one of Claims 10 to 12 wherein the means for supplying breathable gas includes a demand valve connected directly to the orinasal mask, and the orinasal mask includes an exhale valve enabling exhaled

gases to be discharged from the interior of the orinasal mask directly to the surrounding atmosphere.

16. Emergency escape breathing apparatus according to any one of Claims 10 to 12 wherein the means for supplying breathable gas includes a demand valve responding to a reduction of pressure on inhalation for supplying breathable gas to the interior of the hood outside the orinasal mask and wherein the orinasal mask includes an inhale valve enabling breathable gas to enter the orinasal mask from the interior of the hood outside the orinasal mask, and the orinasal mask further includes an exhale valve enabling exhaled gases to be discharged from the interior of the orinasal mask directly to the surrounding atmosphere.

17. Emergency escape breathing apparatus according to Claim 16 wherein the hood includes a visor in front of the eyes of the wearer, and wherein the demand valve is positioned outside the orinasal mask but adjacent the front portion of the orinasal mask so that breathable gas entering the hood on inhalation is deflected by the front portion of the orinasal mask past the visor to de-mist the visor before entering the orinasal mask through the inhale valve.

18. Emergency escape breathing apparatus according to any one of Claims 15 to 17 which further includes a first breath mechanism for initiating supply of breathing gas from the source immediately on donning of the hood.

19. Emergency escape breathing apparatus comprising a hood made substantially wholly of stretchable elastic material, the hood including a neck seal near or at a lower open end of the hood for engaging the neck of a wearer of the hood and a rigid visor in front of the eyes of the wearer, an orinasal mask mounted to a region of the interior of the hood spaced from the

neck seal to provide a confined space around the wearer's nose and mouth, the orinasal mask comprising a base portion for engaging the face or chin of the wearer, side portions extending upwardly from the base portion and a front portion joining the side and base portions for enclosing the nose and mouth of the wearer, the front portion of the orinasal mask including at least one inhale valve permitting the wearer to inhale breathable gas from the interior of the hood outside the orinasal mask and an exhale valve permitting exhaled gases to be discharged from the interior of the orinasal mask directly to the surrounding atmosphere, and means for supplying breathable gas to the interior of the hood outside the orinasal mask comprising a source of the breathable gas, a demand valve mounted in the front of the hood and communicating with the interior of the hood adjacent the front portion of the orinasal mask and spaced therefrom, and flexible hose connecting the source of breathable gas to the demand valve, the stretchable elastic material of the hood being stretchable in a direction around the back of the hood from one side of a region of the hood to which the orinasal mask is mounted to the other side of the said region whereby the stretchable elastic material of the hood draws the orinasal mask firmly against the wearer's face.

20. Emergency escape breathing apparatus comprising a hood made substantially wholly of stretchable elastic material, the hood including a neck seal near or at a lower open end of the hood for engaging the neck of a wearer of the hood and a rigid visor in front of the eyes of the wearer, an orinasal mask mounted to a region of the interior of the hood spaced from the neck seal to provide a confined space around the wearer's nose and mouth, the orinasal mask comprising a base portion for engaging the face or chin of the wearer, side portions extending upwardly from the base portion and a front portion joining the side and base portions

for enclosing the nose and mouth of the wearer, the front portion of the orinasal mask including an exhale valve permitting exhaled gases to be discharged from the interior of the orinasal mask directly to the surrounding atmosphere, and means for supplying breathable gas to the interior of the orinasal mask comprising a source of the breathable gas, a demand valve mounted in the front of the hood and communicating with the interior of the orinasal mask, and flexible hose connecting the source of breathable gas to the demand valve, the stretchable elastic material of the hood being stretchable in a direction around the back of the hood from one side of a region of the hood to which the orinasal mask is mounted to the other side of the said region whereby the stretchable elastic material of the hood draws the orinasal mask firmly against the wearer's face.

21. Emergency escape breathing apparatus according to Claim 19 or Claim 20 wherein the orinasal mask is a half mask.

22. Emergency escape breathing apparatus according to Claim 19 or Claim 20 wherein the orinasal mask is a quarter mask.

23. Emergency escape breathing apparatus substantially as hereinbefore described with reference to Figures 1 and 2 of the accompanying drawings.

24. Emergency escape breathing apparatus substantially as hereinbefore described with reference to Figures 3 and 4 of the accompanying drawings.

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